

Abstract Submitted
for the SES08 Meeting of
The American Physical Society

Search for Diffuse Astrophysical Neutrino Flux Using Ultra-High-Energy Upward-Going Muons in Super-Kamiokande II ARIANA MINOT
— Several leading astrophysical models associate a diffuse flux of high-energy neutrinos from active galactic nuclei and other extra-galactic sources. It is expected that, for muon energies about 1 TeV, the upward-going muon flux induced by neutrinos from astrophysical sources should exceed the flux of muons induced by atmospheric neutrinos. A search for high energy neutrinos of the ≥ 1 TeV range in Super-Kamiokande II's data was performed by looking in the data for ultra-high energy upward-going muons induced by the high energy neutrinos interacting in the rock beneath the detector. One UHE-upmu candidate was found in the 860.37 days of live-time. The method used to fit the track of the muons' path in the detector has been improved, so the search is now less dependent on human classification and more automated than the previous search. This search will be used to place a 90% classical confidence level limit on the diffuse flux of upward-going muons due to neutrinos from astrophysical sources in the muon energy range 3.16-100 TeV.

Ariana Minot

Date submitted: 14 Aug 2008

Electronic form version 1.4